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Evaluation of a Simple Data Assimilation System for Gulf Stream Forecasting

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13. Abstract *(Maximum 200 words).*

A Gulf Stream forecast system based on the NOARL two-layer, primitive equation circulation model is being developed and transitioned to operational, U.S. Navy use by the Data Assimilation Research and Transition (DART) team at NOARL and NAVOCEANO. The model is initialized using a dynamic height field obtained by applying the Optimum Thermal Interpolation System (OTIS) feature models to a map of front and ring positions.

The results of experiments designed to evaluate the system in an operationally-realistic mode are presented here. In one set of experiments, observed cloud cover (data gaps) is superimposed on a sequence of frontal paths derived using virtually complete data coverage. In the other set of experiments, operational front and ring maps, rather than research-grade maps, are used for initialization. In both sets of experiments, a rudimentary data assimilation system is established by using a previous forecast to fill in long data gaps in the frontal path.

Both model forecasts, which are initialized from a composite which assume the frontal path does not change in time, are compared to the verification paths. Statistical results indicate that the system's forecast skill is better than that of persistence. In addition, anecdotal results demonstrate the value of the system

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